

54431 DREV

Work Order ID 54121

November 30, 2009 11:42:48 AM



Item ID: D2580-1
 Revision ID: D
 Item Name: 205 Skidtube bent detail
 Start Date: 01/12/2009 Start Qty: 2.00
 Required Date: 03/12/2009 Req'd Qty: 2.00
 Reference:

Accept



Setup Start



Stop



Cust Item ID:
 Customer:

Approvals: Process Plan: PL Date: 07-11-30 Tooling: _____ Date: _____
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2580	Rev D								
100		0.00							
	HandFinish								
	Memo	0.00							
Hand Finishing	1- Inspect mat'l D2500-1-190 for damage.								
	2- Chemical Conversion Coat as per QSI 005 4.1								
101	QC3- Inspect Part Finish	0.00							
	QC								
	Memo	0.00							
Quality Control									

2 - - AWB 9-12-02

2 - 11/9/12/12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 54121

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Item ID:	D2580-1	Accept		Setup	Start	
Revision ID:	D				Stop	
Item Name:	205 Skidtube bent detail					
Start Date:	01/12/2009	Start Qty:	2.00		Cust Item ID:	
Required Date:	03/12/2009	Req'd Qty:	2.00		Customer:	
Reference:						

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	
	QC:	Date:	SPC (Y/N):	Date:		Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
110 	Skidtubes	0.00				2	-	-	AWM 9-12-09
	Memo	0.00							
	1-Drill pilot holes using drill jig DT 8149 (Do not use cutting fluid)								
	2-Open holes to 0.500" as per Dwg D2580 without cutting fluid								
	3-Deburr and blow out all chips from inside of tube								
	4-Bond web in place per QSI 015.								
	<input type="checkbox"/> A/R Sikaflex-291 batch: 112395 <input type="checkbox"/>								
	Sikaflex expire date: 10-02-20								
	Start time: bond for 12hrs 2.00								
130 	QC5- Inspect part completeness to step on W/O	0.00							
QC	Memo	0.00							
Quality Control									

DP 9-12-9 (2)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 54121

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Item ID: D2580-1
Revision ID: D
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Start Date: 01/12/2009 Start Qty: 2.00
Required Date: 03/12/2009 Req'd Qty: 2.00
Reference:

Accept



Setup Start



Stop



Cust Item ID:

Customer:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140 	Identify as per dwg & Stock Location: <u>416</u>	0.00	DP 9-12-9		②				
Packaging	Memo	0.00							
Packaging									
150 	QC21- Final Inspection - Work Order Release	0.00							
QC	Memo	0.00							09/12/10
Quality Control									

09/12/10 *[Signature]*

R 0912-9

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

November 30, 2009 11:42:54 AM

Page 1

Work Order ID: 54121

Parent Item: D2580-1RevD

Parent Item Name: 205 Skidtube bent detail

Comments:

Start Date: 01/12/2009

Required Date: 03/12/2009

Start Qty: 2.00

Required Qty: 2.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	--------------------------	---------------	----------------	--------

D2500-1-190RevG		Manufactured	No				Each	114.0000	2.0000			
-----------------	--	--------------	----	--	--	--	------	----------	--------	--	--	--



Ext'n -1' Beam Tube 4"

Warehouse Loc Qty Loc Code

Location

Main Warehouse

LG 111

50166 10

52319 101

Main Warehouse

ST 3

46468 3

D2596RevD		Manufactured	No			110	Each	5.0000	2.0000			
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Web, 205 Skidtube

Warehouse Loc Qty Loc Code

Location

Main Warehouse

LG 5

51528 4

53263 1

AWM 9-12-02

AWM 9-12-02

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART

DESIGN <i>[Signature]</i>	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D2580	REV. D SHEET 1 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	
D	07.02.27	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183	

RELEASED
07-06-28 *[Signature]*

QTY -041	QTY -045	Part Number	Description
X		D2580-041	SKIDTUBE ASSEMBLY
	X	D2580-045	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
1	1	D2576-3	STEP
20	24	D2579	CROSS BOLT SPACER
16	16	D2594-1	PLUG
16	16	D2594-3	O-RING
1	1	D2596	205 WEB
1	1	D2855	AFT CAP
1	1	D3564-5	WEARSHOE
1	1	D3564-9	WEARSHOE
1	1	D3564-11	WEARSHOE
1	1	D3564-13	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1	1	D3566-13	GASKET
50	50	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
50	50	AN3C4A	BOLT
2	2	AN3-5A	BOLT
50	50	AN960C10L	WASHER
2	2	AN960JD10L	WASHER

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) ALL DIMENSIONS ARE IN INCHES
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/-291.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:
SEE NOTES ON
PAGE 2 FOR D2580-041 AND
PAGE 3 FOR D2580-045
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

NO. *54121*
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Diagram of a circular cross-section of a pipe with four vertical stiffeners. The stiffeners are spaced 3.500 inches apart. The distance from the centerline of the pipe to the centerline of the stiffeners is 1.750 inches.

RELEASED
07-06-28-11

Diagram illustrating the grinding locations for the D2576-3 step. The diagram shows a cross-section of the step with the following labels:

- GRIND FLUSH (4 PLACES)
- GRIND FLUSH
- D2576-3 STEP
- LOCATION RIDGE ON UNDERSIDE OF D2576
- $\frac{1}{4}$

Technical drawing of a circular component with the following callouts and dimensions:

- DRILL PRIOR TO D2855 CAP INSTALLATION (2 PLACES)
- SEAL WITH SIKAFLEX-241/-291
- AN3-SA BOLT (1)
- AN960JD10L WASHER (1) (2 PLACES)
- D2855 CAP
- 0.40

Diagram of a circular web assembly. The diagram shows a circular cross-section with a central vertical web and two horizontal webs. Labels point to various components: D2579 SPACER (top), D2596 WEB (REF) (left), and ALS7-1032-130 (REF) (TYP 50 PLACES) (bottom left). A note on the right side of the diagram reads: "AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY: 1. CHAMFER HOLE 0.050 X 45° 2. INSERT D2579 SPACER (20 PLACES) 3. WELD INTO PLACE AND GRIND FLUSH 4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP". A small detail of a hole with a chamfer is shown at the top right.

D2579 SPACER

D2596 WEB (REF)

ALS7-1032-130 (REF)
(TYP 50 PLACES)

AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

37.50
DISTANCE TO AFT END
OF D2598 WEB
38.0
190.0
(D2500-1)
57.313 (REF)
7 EQUAL SPACES
8.188 PITCH
34.188
26.000
17.375
8.750
1.750
1.750
#0.508 (TYP.)
(40 PLACES)
REFER TO DETAIL A
REFER TO DETAIL A

0.5 1.5 1.5 D

BLACK ANTI-SKID TO 0.5 ABOVE LOCATION RIDGE

BLACK ANTI-SKID TOP OF STEP TO 0.5 ABOVE BOTTOM EDGE

WELD AS PER DETAIL B

1.5 1.5 1.5

8

P P P P P P P

D

REFER TO DETAIL C


D3566-1 D3566-5 D3566-1 D3566-13

D3564-11 D3564-5 D3564-9 D3564-13

AN304A BOLT (1)
AN960C10L WASHER (1)
(50 PLACES)

DESIGN *ad* DRAWN BY

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		DART AEROSPACE LTD. HANESBURY, ONTARIO, CANADA	
DRAWING NO.		REV. D	
D2580		SHEET 2 OF 3	
TITLE		SCALE	
205 SKIDTUBE ASSEMBLY		1:24	

RELEASED
07-06-28

Diagram illustrating the grinding locations for the propeller cross-section:

- GRIND FLUSH (4 PLACES)
- GRIND FLUSH
- D2576-3 STEP
- LOCATION RIDGE ON UNDERSIDE OF D2576
- GRIND FLUSH
- $\frac{1}{4}$

Technical drawing of a circular component with the following callouts and dimensions:

- DRILL PRIOR TO D2855 CAP INSTALLATION (2 PLACES)
- SEAL WITH SIKAFLEX-241/-291
- ANJ3-5A BOLT (1)
- AN96GJD10L WASHER (1)
- (2 PLACES)
- SEE NOTE
- D2855 CAP
- 0.40

D2579 SPACER

D2596 WEB (REF)

ALS7-1032-130 (REF)
(TYP 50 PLACES)

AFTER PERFECT

1. CH
2. INS
3. WE
4. C'D

i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ENTIRE ASSEMBLY GREEN (REF. 4.3.5.8) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

ii) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE
WITH THE SPACER AT THIS LOCATION

[illegible]

WELD AS PER DETAIL F

BLACK ANTI-SKID TO 0.5 ABOVE LOCATION RIDGE

BLACK ANTI-SKID TOP OF STEP TO 0.5 ABOVE BOTTOM EDGE

0.5

1.5

1.5

H

NO C'BORE NO PLUG

REFER TO DETAIL G

P P P P P P P P

H

NO C'BORE NO PLUG

D3566-1

D3566-5

D3566-1

D3566-13

D3564-11

D3564-5

D3564-9

D3564-13

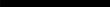
AN3C4A BOLT (1)

AN960C10L WASHER (1)

(50 PLACES)

DESIGN

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	DATE	TITLE		SHEET 3 OF 3
07.02.27	205 SKIDTUBE ASSEMBLY		SCALE	1:24